

## Patent Abstracts of Japan

PUBLICATION NUMBER : 2000180599  
PUBLICATION DATE : 30-06-00

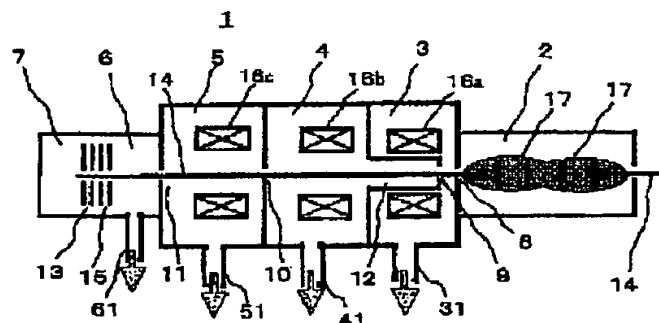
APPLICATION DATE : 14-12-98  
APPLICATION NUMBER : 10354139

APPLICANT : HITACHI LTD;

INVENTOR : SEKI HIROBUMI;

INT.CL. : G21K 5/04 H01J 37/301

TITLE : ELECTRON BEAM PROCESSOR



**ABSTRACT :** PROBLEM TO BE SOLVED: To make it possible to reduce the loss of an electron beam due to the collision of it with an inflow gas and the scattering of it by forming a concave part near a beam passage hole in the structure of a section including a beam passage part in a decompression chamber adjoining an atmospheric pressure chamber.

**SOLUTION:** Decompression chambers 3, 4 and 5 and electron beam chambers 6 and 7 are located adjacently to an atmospheric pressure chamber 2 one by one, the decompression chambers 3, 4 and 5 and the electron beam chamber 6 are connected with exhaust ports 31, 41, 51 and 61 respectively and an air is exhausted by a group of vacuum pumps. Small openings 8, 9, 10 and 11 through which a beam passes are formed in diaphragms in adjoining spaces of each of the decompression chambers 3, 4 and 5 and the electron beam chamber 6, and staggered exhaust is carried out in the openings 8, 9, 10 and 11 to reduce pressure from the atmospheric pressure chamber 2 to the electron beam chamber 7 in order. The structure of a section including a beam passage part of the decompression chamber 3 is made so as to form a concave part 12 near the opening 9. Consequently, the passage distance of an electron beam in the decompression chamber 3 can be infinitely shortened in theory, which can restrain the collision of the electron beam with a gas flowing in from the atmospheric pressure chamber 2 and the scattering of the electron beam.

COPYRIGHT: (C)2000,JPO